20   master clock on one or more carriers synchronized to a recovered version of said master

21   carrier but frequency translated to a second frequency band that does not interfere with

22   said first frequency band in which said master carrier is transmitted, said remote unit

23   modems transmitting simultaneosly on said second frequency band using synchronous

24   code division multiplexing or synchronous time division multiplexing to separate the

25   upstream payload data transmitted by each remote unit modem.

1   ~~107~~. 106 The apparatus of claim ~~106~~ 105 further comprising means for receiving

2   bandwidth requests from said remote unit modems, and for awarding bandwidth in

3   accordance with any scheme to arrive at one or more bandwidth awards, and for

4   allocating spreading codes or timeslots for use by said remote unit modems identified in

5   said bandwidth awards in transmitting upstream frames in accordance with said

6   bandwidth awards, and for transmitting said bandwidth awards in downstream

7   management and control message to said remote unit modems indicating which spreading

8   codes or timeslots specified remote unit modems are to use to transmit upstream data in

9   specified frames or to spread the spectrum of data in specified upstream frames

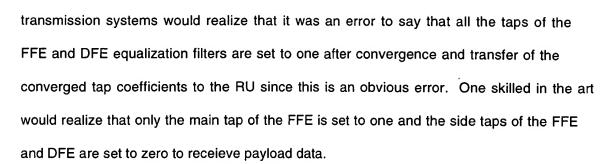10   identified in said downstream messages.

Remarks

Claim 7 has been voluntarily amended to correct it to specify that the preamble

data is used to generate both phase and amplitude correction factors for each remote

modem for use in receiving data transmitted by that remote modem.

Claim 72 has been voluntarily amended to correct its statement of the structure

of the central unit modem.

The amendment to page 143, line 26 is made to make clear that which would be
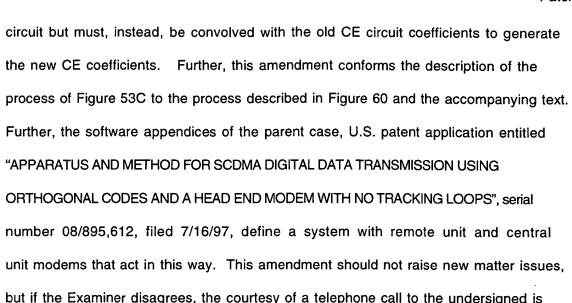
apparent to one skilled in the art as inherently necessary in an upstream training process where tap coefficients of a central unit modem are trained and later sent down to the RU transmitter to be used there to calculate new RU precoder filter tap coefficients so as to predistort the transmitted signal so that it will arrive already equalized. Since step 1126 of Figure 53B teaches setting the coefficients of the central unit modem symbol equalizer circuit to one after transferring the converged coefficients to the remote unit transmitter, one skilled in the art would understand that the central unit modem is not equalizing, so the remote unit must be doing the equalizing for its particular signal path for that is the reason for the transfer of the converged coefficients back down to the RU. Therefore, it would be necessary during the convergence process for the RU transmitter to not predistort the equalization training data in some embodiments, and one skilled in the art would understand this. Obviously, after the transfer of the SE converged coefficients from the CU SE circuit to the RU precode filter, the RU precode filter is doing the equalization for this RU, and it is necessary to set the CU SE filter coefficients to values which render it transparent so as to not goof up the equalization being performed by the RU precode filter. Further, the software appendices of the parent case, U.S. patent application entitled "APPARATUS AND METHOD FOR SCDMA DIGITAL DATA TRANSMISSION USING ORTHOGONAL CODES AND A HEAD END MODEM WITH NO TRACKING LOOPS", serial number 08/895,612, filed 7/16/97, define a system with remote unit and central unit modems that act in this way. This amendment should not raise new matter issues, but if the Examiner disagrees, the courtesy of a telephone call to the undersigned is respectfully requested.

The same comments apply to the amendment to page 144, line 17 with the additional comment that one skilled in the art of equalization in distributed digital data

transmission systems would realize that it was an error to say that all the taps of the FFE and DFE equalization filters are set to one after convergence and transfer of the converged tap coefficients to the RU since this is an obvious error. One skilled in the art would realize that only the main tap of the FFE is set to one and the side taps of the FFE and DFE are set to zero to receieve payload data.

The amendment at page 144, line 8 conforms the description of step 1124 in the upstream equalization process embodiment of Figure 53B for the CDMA specific transmitters disclosed herein to step 1514 of the process of Figure 60 which is an equalization process which is useful in any distributed digital data system with multiple transmitters transmitting to a singe central unit transmitter over different paths regardless of the type of multiplexing in use. Those skilled in the equalization art would realize that the original description of step 1124 was erroneous in not mentioning convolving the old coefficients with the new coefficients. Further, the software appendices of the parent case, U.S. patent application entitled "APPARATUS AND METHOD FOR SCDMA DIGITAL DATA TRANSMISSION USING ORTHOGONAL CODES AND A HEAD END MODEM WITH NO TRACKING LOOPS", serial number 08/895,612, filed 7/16/97, define a system with remote unit and central unit modems that act in this way. This amendment should not raise new matter issues, but if the Examiner disagrees, the courtesy of a telephone call to the undersigned is respectfully requested.

The change to page 145, lines 10-13 is made to correct an error that persons skilled in the art of equalization would have readily understood was made in the description of how the new CE equalization circuit coefficients are calculated after convergence of the SE coefficients. Persons skilled in the art would appreciate that the new RU receiver SE coefficients cannot be loaded directly into the RU CE equalizer

circuit but must, instead, be convolved with the old CE circuit coefficients to generate the new CE coefficients. Further, this amendment conforms the description of the process of Figure 53C to the process described in Figure 60 and the accompanying text. Further, the software appendices of the parent case, U.S. patent application entitled "APPARATUS AND METHOD FOR SCDMA DIGITAL DATA TRANSMISSION USING ORTHOGONAL CODES AND A HEAD END MODEM WITH NO TRACKING LOOPS", serial number 08/895,612, filed 7/16/97, define a system with remote unit and central unit modems that act in this way. This amendment should not raise new matter issues, but if the Examiner disagrees, the courtesy of a telephone call to the undersigned is respectfully requested.

The same comments made regarding the change to page 143, line 26 apply to the change made to page 170, line 14 since a person skilled in the art would realize that after the CU SE filter coefficients have converged and its coefficients have been sent to the RU to generate new precode filter coefficients there by convolving with the old coefficients of the precode filter, it is necessary to set the SE coefficients in the CU receiver to values such that the CU SE does not screw up the equalization now being performed by the RU precode filter. Those skilled in this art know that those tap coefficients are one for the SE FFE main tap and zero for the SE FFE and DFE side taps. No new matter is believed to be raised by this amendment.

The changes to pages 169 and 170 simply correct duplicate reference numbers which refer to different process steps.

The change to page 170, line 14 simply corrects an error which would have been detected by persons skilled in the art of equalization. After the coefficients of the SE circuit have converged and have been convolved with the old CE coefficients to derive new

CE coefficients, the SE coefficients must be set to main tap = 1 and side taps = 0 since to

not do so would result in the equalization being done in the RU precode filter in the case

of upstream transmissions or the RU CE circuit in the case of downstream transmissions

being screwed up by the SE circuit in the RU. Persons skilled in the art appreciate that

after the new precode or CE coefficients have been set, the SE coefficients need to be set

to a transparent state of main tap = 1 and side taps = 0 so that the SE circuit is

transparent (and can start to reconverge on subsequent iterations or periodic updates of

the precode or CE coefficients).

Respectfully submitted,

Dated: January 3, 2001

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